

THE MINERAL INDUSTRY OF EGYPT

By Harold R. Newman

In 2004, the mineral fuels sector continued to be a vital segment of and a major contributor to the economy of Egypt. Petroleum and petroleum products comprised the top export commodities in 2004. Mineral industry efforts were focused mainly on the further development of the country's petroleum and natural gas resources. Egypt was one of the world's top 20 energy-producers, and the mineral fuels sector, which was the single largest industrial activity in the country, accounted for 95% of the primary energy requirements, 30% of total exports, and 8% of the gross domestic product (GDP) (Summit Communications, 2004§¹).

Economic development was placing stress on Egypt's environment. Population density combined with postponed infrastructure investment had overwhelmed water and wastewater services and created environmental hazards. The main environmental issues Egypt faced were air pollution, carbon dioxide emissions, energy consumption, and preservation of coastal areas. Also, the Nile River and its tributaries were being contaminated with chemicals, heavy metals, and pollutants (U.S. Energy Information Administration, 2004§).

Egypt's estimated GDP based on purchasing power parity was about \$282 billion. The estimated GDP per capita based on purchasing power parity was \$4,072. The estimated annual inflation rate was 8%, and the estimated growth rate was 4.3% (International Monetary Fund, 2005§). The country had a land area of 1,001,450 square kilometers (km²) and an estimated population of 78 million (U.S. Central Intelligence Agency, 2005§).

Egyptian Geological Survey and Mining Authority (EGSMA) is the Government agency responsible for regulating the exploitation, exploration, and prospecting of all mineral deposits in Egypt. The laws that regulate the mining sector are the Mining and Petroleum Code law No. 66 of 1953 and the Mining Code laws No. 86 and No. 151 of 1956. The Ministry of Petroleum and the Ministry of Electricity and Energy are the main Government agencies responsible for the energy sector.

The Organization for Energy Planning is the Government office responsible for analyzing energy policies and energy supply and demand, evaluating energy resources, and developing technical expertise in the field. Government-owned Egyptian Electric Holding Company is responsible for the country's power generation and owns distribution companies.

Besides mineral fuels, Egypt also produced aluminum, ferroalloys, gold, iron ore, lead, secondary copper, steel, and zinc. Industrial minerals produced included construction materials, gypsum, and raw materials for glass.

Commodity Review

Metals

Gold.—Centamin Egypt Ltd. of Australia was a mineral exploration company that had been exploring for gold in Egypt since 1995. From 1977 through 1995, extensive geologic mapping, prospecting, and sampling were carried out. Centamin had a 160-km² exploitation lease for the Sukari Hill gold project and, in 2004, Centamin selected the Sukari Hill project as the first project for development owing primarily to its proximity to infrastructure. The project was part of Centamin's Eastern Desert concession, which also included the Abu Marawat, the Baramiya, and the Hamama deposits. The Sukari Hill deposit is located in the Sukari area and is a 2.5-kilometer (km)-long outcropping porphyry granite hill that is situated about 700 km south of Cairo and 25 km west of Marsa Alam on the Red Sea (Centamin Egypt Ltd., 2004§).

Most gold mineralization at Sukari is related to sulfides; pyrite is the most abundant sulfide, followed by arsenopyrite. The sulfides occur in altered rocks and in quartz veins. At yearend, estimated resources at Sukari were 91,400 kilograms (kg) of gold (reported as 2.94 million troy ounces) with ongoing drilling expected to add to this resource (Centamin Egypt Ltd., 2005§).

Gippsland Ltd. announced that EGSMA had granted it the rights to explore eight gold prospects in the Wadi Allaqi District that is located 160 km southeast of Aswan in the south-western part of the Eastern Desert. The geology of the Wadi Allaqi region comprises the most southerly part of the Late Cambrian Arabian Shield and contains a northwest- and west-trending belt of gabbro/granite complexes, metasedimentary and metavolcanic schist, and ophiolites, which are overlain unconformably by the Nubia Group sandstones of Upper Cretaceous age. Within the 12,000-km² Wadi Allaqi area, about 19 historical gold deposits were known. Gippsland's eight gold projects included Haimur, Nile Valley Block A, Nile Valley Block E, Seiga, Umm El Tuyer, Umm Garayat Koleit, Umm Urrayyat, and Umm Shashoba. No mining has been conducted there since the early 1950s (Gippsland Ltd., 2004§).

Iron and Steel.—Egyptian Iron and Steel Co. operated the El-Gedida Mine, which is located about 23 km northeast of the El Bahariya Oasis in the Western Desert, and produced about 2.9 million metric tons (Mt) of limonitic iron ore. All production was captive and shipped by rail to Egyptian Iron and Steel's (Hadisob) Helwan plant where it was smelted. The open pit mine produced iron ore with a grade of about 52% contained metal and a 43% contained-metal cutoff grade. The ore body was about 7 meters (m) thick and had an estimated 120-Mt reserve. Egypt was an importer of iron ore, although several high-grade deposits had been identified to the southeast of Aswan (United Nations Conference on Trade and Development, 2004).

Ezz El-Dekheila Group (EZDK) continued with its program of acquisition, consolidation, and investment; it had 5.2 million metric tons per year (Mt/yr) of capacity and was the leading private steelmaker (Metal Bulletin Monthly, 2004).

¹References that include a section mark (§) are found in the Internet References Cited section.

Because steel demand was expected to remain fairly flat, EZDK targeted the most profitable international markets while anticipating future growth domestically. EZDK's exports in 2004 were valued at \$624.6 million and were expected to reach \$900 million in 2005 (News Flash, 2004\$).

The Government lowered its import tariff on reinforcing steel (rebar) to 5% from 20%. The tariff reduction was effective beginning January 2004. Although this reduction could eventually open up the Egyptian market, the immediate impact was expected to be minimal because rebar prices were significantly lower in Egypt than in other markets. In 2004, rebar was sold for \$350 per metric ton in Egypt compared with between \$370 and \$380 per metric ton in Saudi Arabia and other local markets. The antidumping measures for rebar imported from Latvia, Romania, Turkey, and Ukraine were not changed (Metal Bulletin, 2004a).

Voestalpine Schienen, the Austrian steel group's rail division, signed a memorandum of understanding for a licensing agreement, whereby Hadissolb would produce rails in Egypt using Voestalpine technology. The plan was to extend the range of Hadissolb's heavy-section rolling mill so it could make commodity-grade rails up to 36 m long. Voestalpine would arrange for the necessary transfer of know-how and technical support. Hadissolb's integrated steelworks, which was located south of Cairo at Helwan, casted billet, bloom, and slab (Metal Bulletin, 2004b).

Egyptian Ferroalloys Co. (Efaco) produced and distributed ferrosilicon 75% in the domestic and international markets. Efaco's Aswan plant at Edfu was considered to be the leading integrated industrial center for the production of ferrosilicon in the Middle East. The location was chosen because of its closeness to the source of electricity and the availability of pure quartz in the area of Umm Hegleg, which is located about 100 km from Edfu. The production was used in the iron and steel industries. Efaco had four furnaces, each of which had a 50,000-metric-ton-per-year (t/yr) capacity (Egyptian Ferro Alloys Co., 2004\$).

Magnesium.—Magnesium International Ltd. (MIL) announced that its proposed 88,000-t/yr magnesium plant would be constructed inside the Sokhna Port at Ain Sokhna, which is located on the Gulf of Suez about 110 km east of Cairo and 50 km south of Suez City. The smelter would be owned and operated by a joint-venture company, Egyptian Magnesium Co. (EMAG). The EMAG project was a joint venture between MIL and Amiral Investments (50% each) (Magnesium International Ltd., 2004\$).

The Governments of Egypt and China signed a contract to build a factory to produce magnesium sulfate, which is used to improve soil, as an additive for livestock feed, and as an ingredient for the pharmaceutical industry. This factory would be the first of its kind in the Middle East and was expected to produce 27,000 t/yr of magnesium sulfate, which would be about 5% of world output (American Chamber of Commerce in Egypt, 2004\$).

Tantalum.—Gippsland Ltd. released the results of the bankable feasibility study (BFS) prepared by Lycopodium Pty. Ltd. for its 40 Mt of estimated reserves of ore at its Abu Dabbab tantalum-tin project. The BFS was based upon a design throughput of 1.26 Mt/yr and evaluated the project for the first 20 years of mine life. Gippsland estimated that the project would produce about 300 t/yr of tantalum pentoxide, which would establish the company as the world's second leading tantalum producer after Australia. About 1,000 t/yr of tin metal in concentrate was also expected to be produced. Tantalum Egypt LLC was the operating company of the joint venture in which Gippsland and the EGsMA each held a 50% interest. Tantalum Egypt also owned the mining license for the estimated 98-Mt Nuweibi tantalum deposit, which is located 17 km from the Abu Dabbab project (Mining Magazine, 2004).

Industrial Minerals

Asbestos.—The Ministry of Foreign Trade announced that, effective January 2005, the import and manufacture of all types of asbestos and asbestos material would be prohibited; the fulfillment of existing contracts would be permitted only under the supervision of the Industrial Control Authority. The decision to ban asbestos was the culmination of a sustained campaign by workers who protested that high levels of occupational asbestos had led to numerous cases of cancer and asbestosis among the workforce (Kazan-Allen, 2004).

Cement.—The main cement producers in Egypt were, in order of capacity, Egyptian Cement Co., Assuit Cement Co., Tourah Portland Cement Co., Suez Cement Co., ASEC Cement Co., National Cement Co., and Alexandria Portland Cement (Arab Union for Cement and Building Materials, 2004\$).

The Italcementi Group's Ciments Français S.A. offered \$550 million for the Government's 65.9% share in Suez Cement. Ciments Français already owned 39.9% of Suez Cement, which was Egypt's leading cement producer with a market share of about 22%. Egypt's strategic importance in the Mediterranean basin was confirmed by the size of its domestic market, which was about 25 Mt/yr and second only to Turkey in the southeast region. Suez Cement had three production facilities (Quattamah, Suez, and Tourahall), all of which were equipped with modern kilns and had a total combined capacity of about 8 Mt/yr for the domestic and export markets (International Cement Review, 2004).

Nitrogen.—A large-scale ammonia plant was to be built in the Suez Industrial Zone near the Port of Ain el Sokhna, which would further increase the country's ammonia production and exports. The 2,000-metric-ton-per-day-capacity ammonia plant would be the largest of its kind in Egypt, measured by production quantities. Egypt Basic Industries Co., which was the project company, was composed of Kellogg Brown & Root Inc. (KBR) of the United States, PSK Holdings Pty. Ltd. and Orascom Construction Industries, both local companies, and state-owned Egyptian General Petroleum Corp. (EGPC). The industrial complex was to include a pipeline corridor that connected the ammonia production plant to product storage tanks located in Sokhna Port. The plant design was to be based on KBR's advanced ammonia process (Middle East Economic Digest, 2005).

The U.S. Trade and Development Agency awarded a \$702,000 grant to Egyptian Petrochemicals Holding Co. to finance a feasibility study for a proposed \$500 million ammonia/methanol plant. Plans called for a 1.7-Mt/yr plant to be built near Damietta in the Mediterranean Industrial Zone (Middle East Economic Digest, 2004a).

Phosphate Rock.—Red Sea Phosphate Co. was merged with El Nasr Phosphate Co. in 2004 and the name was changed to El Nasr Mining Co. (NMC). The phosphate mines of Abu Zabal Fertilizer Co. were also merged with NMC. As a result, NMC became one of

the leading mining companies in Egypt with activities that extended from Alexandria in the north to Aswan in the south. NMC not only mined phosphate rock but also barite, feldspar, gypsum, ilmenite, iron oxide, kaolin, quartz, and talc (El Nasr Mining Co., 2004§).

The Ministry of Industry and Technology's Abu Tartu phosphate project lies in the desert about 50 km west of El Kharga and 650 km south of Cairo. The project consisted of two main production activities: the mine and the beneficiation plant. The Government invited prospective offers for either leasing the mining project and the construction of a chemical/fertilizer complex or leasing the mining project only. The phosphate deposit covered an area of about 1,200 km², of which a tenth had been explored geologically. Exploration indicated about 715 Mt of estimated reserves with an average seam thickness of 3.5 m. In 2004, the license for exploration was restricted to an area of about 14 km² with estimated reserves of about 65 Mt of fresh phosphates and about 20 Mt of oxidized phosphates, which could be extracted by open pit mining (Ministry of Industry and Trade, 2004§).

Sand and Gravel.—About 15 localities of high-grade silica sand were reported to have been identified. The main deposits were Wadi El-Dakhi and Wadi Qena, which are located in the Eastern Desert; Gebel El-Gunnah, which is located south of Sinai; and El-Maadi, which is located near Cairo. Wadi El-Dakhi was considered to be the largest deposit in the country, but no detailed studies to estimate its reserve had been carried out. Possible resources at Wadi Qena were estimated to be 1 billion metric tons (Gt). Possible resources at Gebel El-Gunnah were estimated to exceed 1 Gt (MBendi Co., 2004§).

Mineral Fuels

Egypt was a transit corridor in the Persian Gulf and had strategic importance because of its operation of the Suez Canal and the Suez-Mediterranean (Sumed) Pipeline. The Government's Suez Canal Authority (SCA) was continuing enhancement and enlargement projects on the canal. SCA was offering a discount on transit fees to liquefied natural gas (LNG) tankers as well as other discounts for oil tankers as an incentive to use the Suez Canal. The Sumed pipeline was an alternative to the Suez Canal for transporting oil from the Persian Gulf region to the Mediterranean. The 200-mile pipeline, which was owned by Egypt, 50%, Saudi Arabia, 15%, Kuwait, 15%, the United Arab Emirates, 15%, and Qatar, 5%, ran from Ain al-Sukhna on the Gulf of Suez to Sidi Kir on the Mediterranean (U.S. Energy Information Administration, 2005§).

EGPC launched its 2004 bid round and released for tender 15 new exploration blocks in the Gulf of Suez, the Nile Delta region, and the Western Desert. The blocks cover an area of 30,804 km². Four of the largest concessions (North Quarun, Southeast El-Mansoura, South Mariut, and West Darag Onshore) are located in the Nile Delta, and the largest, West Darag, covers 8,970 km² of territory between the Nile and Red Sea coast. Four other blocks are located in the desert to the west of the delta, and seven smaller concessions were on offer in the northern spur of the Gulf of Suez (Middle East Economic Digest, 2004b).

Natural Gas.—Most of Egypt's offshore discoveries have been natural gas and it was the fastest growing mineral fuels sector in 2004. Egypt became an exporter of LNG when its first LNG export terminal began operation in 2004 and the first shipment of LNG left the terminal in January 2005. The country was expected to become a significant exporter of LNG when a second export terminal becomes operational in 2006 (U.S. Energy Information Administration, 2005§).

As of January 2005, the Government's revised estimate of proven natural gas reserves was about 1.9 trillion cubic meters (reported as 66 trillion cubic feet). The International Egyptian Oil Company (a subsidiary of ENI-Agip of Italy) was Egypt's leading natural gas producer. The company operated in the Gulf of Suez, the Nile Delta, and the Western Desert (U.S. Energy Information Administration, 2005§).

Egypt's 270-km natural gas pipeline to Jordan was intended as the first stage of a wider regional network, the Arab Gasline, which would send supplies from Egyptian gasfields to Lebanon and Syria, eventually to Turkey, and perhaps to Cyprus. In 2005, Jordan was to import about 3 million cubic meters from Egypt following construction of a 393-km pipeline extension from Aqaba to the Rehab powerplant in northern Jordan. The proposed extension of pipeline links to Turkey would add substantially to the demand on Egyptian natural gas, as would Israel Electric Corp. (IEC)'s plans to lift Egyptian natural gas from 2006. The East Mediterranean Gas consortium was looking to supply IEC with about 5 million cubic meters during a 15-year sale period. Also, the Palestinian Authority signed a memorandum of understanding with the Egyptian Government to purchase about 9 million cubic meters of natural gas to feed a powerplant in Gaza (African Energy, 2004).

Apache Corp. signed an agreement to sell 58 million cubic meters of natural gas during a 25-year period from its Qasr field to EGPC. Qasr will flow more than 8 million cubic meters per day, which will more than double Apache's existing production. Apache described Qasr as the most significant natural gas discovery in the Western Desert in the past decade and perhaps the most significant in Apache's history (Petroleum Economist, 2004).

Apache announced test results of two new wells in the Qasr field on the Khaida concession. The Qasr-6 well test flowed at a rate of 750,000 million cubic meters per day of natural gas and 1,037 barrels per day (bbl/d) of condensate in two zones in the Jurassic Lower Safa formation. The Qasr-9 well flowed at a rate of 826 bbl/d of crude petroleum and 2,000 cubic meters per day of natural gas, which registered the strongest test to date from the Cretaceous Alam El Bueib sands (Rigzone.com, 2004a§).

BG Group plc proposed to drill about 25 wells during 2004 and 2005. The figure included the two new production wells it planned to drill in the Simian field in the West Delta Deep Marine (WDDM) concession offshore the Nile Delta. BG stated that it planned to accelerate the drilling schedule for these two wells. Also, BG said that it planned to bring forward the schedule for the first gas from Phase 2 of the Rosetta development (Rigzone.com, 2004b§).

BG announced that it had finalized an agreement for the purchase of Shell Egypt N.V. and Shell Austria GmbH's (collective) interest in the Rosetta concession offshore Egypt. The sale, if approved by the Egyptian Government, would raise BG's equity interest in Rosetta to 80% from 40%. The Rosetta concession includes the producing gasfield and three development leases. The purchase price was reported to be \$235 million (Schlumberger Corp., 2004a§).

BP Egypt announced that it had made a new gas discovery in the Western Nile Delta. The Polaris 1 exploratory well was the second discovery in the West Mediterranean Deep Water (WMDW) concession following the Ruby discovery in 2003. Polaris 1 was tested and flowed gas at a rate of 742,000 cubic meters per day from a Mid-Pliocene slope channel at a depth of 2,178 m. BP, which was the operator of the WMDW concession, held an 80% interest, and RWE Dea Egypt held the remaining 20% (Rigzone.com, 2004c§).

BG was increasing its gas exploration and was meeting with other companies in a bid to find supplies for a third Egyptian LNG (ELNG) train planned for construction. BG was undertaking major gas exploration in its WDDM concession and in two blocks in the eastern Nile delta. Any discoveries that were made could serve a third processing plant that the company was considering adding to the two trains under construction at the ELNG Idku site, which is located 50 km from the coastal city of Alexandria. The first 3.6 Mt/yr train was expected to begin operations in 2005 and to deliver its annual output to Gaz de France for 20 years (Platts, 2004§).

The Government announced that Egypt would export, for the first time, an LNG consignment from the Damietta LNG exporting unit to Huelva, Spain, starting in January 2005. Expansions to the Italian and the U.S. markets were expected to start in 2006. Damietta, which was one of the world's largest LNG complexes in terms of capacity, had the capacity to produce 7.5 billion cubic meters per year of natural gas to produce 4.8 Mt/yr of LNG for export. Egypt's export of energy, boosted by LNG exports, was expected to rise to \$10 billion by 2010 (Alexander's Gas & Oil Connections, 2004§).

Petroleum.—The Government was expected to begin talks on the possibility of Egypt joining the Organization of the Petroleum Exporting Countries (OPEC) as a full member. The Government was studying the criteria and procedures for membership in OPEC. Egypt was a modest oil producer but has been attending OPEC meetings as an observer (Schlumberger Corp., 2004b§).

Egyptian petroleum production comes from four main areas: the Gulf of Suez (about 50%), the Eastern Desert, the Western Desert, and the Sinai Peninsula. Estimated annual production of crude petroleum was 219 million barrels in 2004 (table 1). Although there has been a decline in output, exploration activity in new areas may discover sufficient oil to slow the decline. According to the U.S. Energy Information Administration (2005§), consumption of petroleum products has been relatively flat since 1999 owing, in part, to reductions in subsidies for consumption of petroleum products and to the use of compressed natural gas as a fuel for motor vehicles.

The leading producer in the Gulf of Suez was the Gulf of Suez Oil Co. (a joint venture of EGPC and Amoco Corp.). The second ranked producer was Belayim Petroleum Co., which was a joint venture between International Egyptian Oil Co. and EGPC. The third ranked producer was the Suez Oil Co. (U.S. Energy Information Administration, 2004§).

The Government awarded two Canadian companies contracts worth \$26 million to explore for oil and gas in a southern Nile River valley. The contracts were awarded to Centurion Energy International and Quadra Resources Corp., which will drill nine wells in the 53,000-km² area near Aswan during an 8-year period. This was the first time the Government had awarded contracts in that area (Middle East North Africa Financial Network, Inc., 2004§).

Lukoil Overseas Holdings Ltd. started exploration drilling on the North-East Geisum offshore block. The North-East Geisum Block is located in the Gulf of Suez in the Red Sea. Lukoil acquired the right to work on this block as well as the neighboring West Geisum Block based on a tender organized by EGPC. The combined reserves of the blocks were estimated to be about 184 Mbbbl of oil. Five oil and gas prospects had been identified within the blocks (Rigzone.com, 2004d§).

Infrastructure

Projects to enhance and enlarge the Suez Canal continued in 2004. Lukoil Overseas opened a 24,000-bbl/d pipeline to convey crude oil from its West Esh el Mallaha concession near Hurghada to export terminals at Gevbel el Zeit and Ras el Bikhar. The \$8 million pipeline, which was designed for continuous operation during a 30-year period, was built by Petrojet Egypt, a local company. Lukoil was finalizing plans for construction of a crude-oil processing facility, which was to be tendered in 2005 (Middle East Economic Digest, 2004c).

Outlook

The Egyptian mineral fuels industry is set to continue to grow during the next 3 to 4 years, mainly as a result of the Government's recent restructuring of the energy sector following several natural gas discoveries. The Government will continue to move forward with its policy to develop the country's hydrocarbon resources. The natural gas sector is expected to expand rapidly as a result of additional output from two LNG export terminals. Although natural gas exports are likely to overtake petroleum exports in the near future, the presence of several foreign companies exploring for petroleum offshore Egypt in 2004 suggests the possibility of further development of the petroleum sector if new discoveries are made.

References Cited

- African Energy, 2004, Regional schemes add to demand on Egyptian reserves: African Energy, February, p. 8.
International Cement Review, 2004, Ciments Français bids for Suez Cement: International Cement Review, issue 80, December, p. 1.
Kazan-Allen, Laurie, 2004, What price the Egyptian asbestos ban: International Ban Asbestos Secretariat, January 19, 3 p.
Metal Bulletin, 2004a, Egypt cuts tariffs on reinforcing steels: Metal Bulletin, no. 8825, January 19, p. 26.
Metal Bulletin, 2004b, Voestalpine signs MoU for Hadisolib to produce rails: Metal Bulletin, no. 8850, July 12, p. 20.
Metal Bulletin Monthly, 2004, EZDK prepares for the next step: Metal Bulletin Monthly, no. 408, December, p. 28.
Middle East Economic Digest, 2004a, EChem receives US methanol grant: Middle East Economic Digest, v. 48, no. 28, July 9-15, p. 16.
Middle East Economic Digest, 2004b, EGPC launches 2004 bid round: Middle East Economic Digest, v. 48, no. 28, July 9-15, p. 14.
Middle East Economic Digest, 2004c, WEEM export pipeline opens: Middle East Economic Digest, v. 48, no. 43, October 22-28, p. 15.
Middle East Economic Digest, 2005, KBR-led consortium unveils Suez ammonia plant: Middle East Economic Digest, v. 49, no. 9, March 4-10, p. 17.

Mining Magazine, 2004, Egypt tin and tantalum: Mining Magazine, October, p. 4.
 Petroleum Economist, 2004, Africa—Egypt: Petroleum Economist, v. 71, no. 6, June, p. 43.
 United Nations Conference on Trade and Development, 2004, The iron ore market 2003-2005: United Nations Conference on Trade and Development, May, p. 24.

Internet References Cited

Alexander's Gas & Oil Connections, 2004, Egypt likely to become sixth-largest exporter of liquefied gas, accessed December 28, 2004, at URL <http://www.gasandoil.com/goc/news/nta44772.htm>.
 American Chamber of Commerce in Egypt, 2004 (June 15), Egypt, China to set up new fertilizer factory in Egypt, accessed June 15, 2004, at URL <http://www.amcham.org.eg?BSAC/WatchBulletin/Issue/Jun1504.asp>.
 Arab Union for Cement and Building Materials, 2004, Cement figures, accessed February 24, 2006, at URL http://www.aucbm.org/arabic/memclck/pdf_stat/ego4.pdf.
 Centamin Egypt Ltd., 2004, Sukari gold project, accessed December 7, 2005, at URL <http://www.centamin.com.au/projects.php>.
 Centamin Egypt Ltd., 2005, Welcome to Centamin Egypt Limited, accessed December 7, 2005, at URL <http://www.centamin.com.au/home.htm>.
 Egyptian Ferro Alloys Co., 2004, At a glance, accessed December 22, 2005, at URL <http://www.efaco.com.eg/micor/ataglance.asp>.
 El Nasr Mining Co., 2004, The company, accessed December 12, 2005, via URL <http://www.elnasrmining.com/+&hl=en>.
 Gippsland Ltd., 2004, Projects, accessed February 24, 2006, at URL http://www.gippslandltd.com/p_w_overview.asp.
 International Monetary Fund, 2005, Egypt, World Economic Outlook Database, accessed December 1, 2005, via URL <http://www.imf.org/external/pubs/ft/weo/2005/01/data/dbcoutm.cfm>.
 Magnesium International Ltd., 2004 (December 17), Magnesium International Ltd. confirm Egypt will be the site for their 88,000 tpy magnesium smelter, accessed December 7, 2005, via URL <http://www.azom.com/details.asp?newsID=2418>.
 MBendi Co., 2004 (November 17), Industrial minerals mining, accessed May 19, 2005, at URL <http://www.mbendi.co.za/land/af/eg/p0005.htm>.
 Middle East North Africa Financial Network, Inc., 2004 (July 20), Egypt awards 2 Canadian oil firms contracts for oil, gas exploration, accessed July 22, 2004, at URL http://www.menafn.com/qn_news_story_s.asp?storyid=57981.
 Ministry of Industry and Trade, 2004, Abu Tartur phosphate deposit, accessed March 22, 2005, at URL <http://www.mitd.gov.eg/sites/abotaor.htm>.
 News Flash, 2005 (May 31), News and features, accessed February 27, 2006, at URL <http://www.cibcegypt.com/cibc/research/researchlibrary.nsf>.
 Platts, 2004 (October 12), BG looks for gas supply for third LNG train, accessed October 13, 2004, at URL <http://www.platts.com/Naturalgas/news/8728468.xml>.
 Rigzone.com, 2004a (September 7), Apache's Qasr-6 tests 750 thousand cubic meter gas, accessed September 7, 2004, at URL http://www.rigzone.com/news/article.asp?a_id=16138.
 Rigzone.com, 2004b (September 24), BG plans to drill about 25 wells in Egypt in 2004/2005, accessed September 27, 2004, at URL http://www.rigzone.com/news/article.asp?a_id=16680.
 Rigzone.com, 2004c (July 26), BP makes Western Nile Delta find, accessed September 27, 2004, at URL http://www.rigzone.com/news/article.asp?a_id=15031.
 Rigzone.com, 2004d (November 10), Lukoil Overseas starts drilling on Egyptian shelf, accessed November 12, 2004, at URL http://www.rigzone.com/news/article.asp?a_id=17941.
 Schlumberger Corp., 2004a (September 6), BG Group pre-empts Rosetta sale, accessed September 7, 2004, at URL <http://www.slb.com/news/story.cfm?storyid=620084>.
 Schlumberger Corp., 2004b (September 20), Egypt's Government mulls joining OPEC, accessed September 20, 2004, at URL <http://www.slb.com/news/story.cfm?storyid=620460>.
 Summit Communications, 2004, Turning up the gas will boost energy sector, accessed March 7, 2005, at URL <http://www.summitreports.com/egypt2004/oilgas.htm>.
 U.S. Energy Information Administration, 2004 (August), Egypt, Environmental Issues, accessed December 14, 2005, at URL <http://www.eia.doe.gov/emeu/cabs/egyptenv.html>.
 U.S. Energy Information Administration, 2005 (May), Egypt, Country Analysis Brief, accessed December 14, 2005, at URL <http://www.eia.doe.gov/emeu/cabs/egypt.html>.
 U.S. Central Intelligence Agency, 2005, Egypt, World Factbook 2005, accessed November 1, 2005, at URL <http://www.odci.gov/cia/publications/factbook/geos/eg.html>.

TABLE 1
EGYPT: ESTIMATED PRODUCTION OF MINERAL COMMODITIES^{1, 2}

(Thousand metric tons unless otherwise specified)

| Commodity | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---------------------|-----------------------|------------------------|------------------------|---------------------|
| METALS | | | | | |
| Aluminum metal metric tons | 189,000 | 191,000 ^r | 195,000 | 194,600 ³ | 215,000 |
| Copper, refined, secondary do. | 4,000 | 4,000 | 4,000 | 14,119 ^{r, 3} | 14,000 |
| Iron and steel: | | | | | |
| Iron ore and concentrate | 1,900 ³ | 2,600 ^{r, 3} | 2,618 ^{r, 3} | 2,237 ^{r, 3} | 2,900 |
| Metal: | | | | | |
| Pig iron | 1,400 | 1,400 | 1,700 | 10 ³ | 1,700 |
| Direct reduced iron | 2,110 | 2,370 | 2,530 | 2,900 | 2,600 |
| Steel, crude | 2,838 ³ | 3,799 ³ | 4,316 ³ | 4,398 ^{r, 3} | 4,400 |
| Ferroalloys: | | | | | |
| Ferromanganese | 30 | 30 | 30 | 30 | 30 |
| Ferrosilicon | 55 | 55 | 55 | 55 | 55 |
| Manganese ore metric tons | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Titanium, ilmenite | 125 | 125 | 125 | 120 ³ | 120 |
| INDUSTRIAL MINERALS | | | | | |
| Asbestos metric tons | 2,000 ^r | 2,000 ^r | 2,000 ^r | 2,000 ^r | -- |
| Barite | 500 | 500 | 500 | 500 | 500 |
| Cement, hydraulic, all types | 24,143 ³ | 25,700 | 28,155 ³ | 26,639 ³ | 28,763 ³ |
| Clays: | | | | | |
| Bentonite | 50 | 50 | 50 | 26 ^{r, 3} | 30 |
| Fire clay | 300 | 300 | 300 | 300 | 300 |
| Kaolin metric tons | 290,000 | 260,000 | 260,000 | 260,000 | 260,000 |
| Feldspar, crude do. | 330,000 | 300,000 | 350,000 | 350,000 | 350,000 |
| Fluorspar do. | 500 | 500 | 500 | 500 | 500 |
| Gypsum and anhydrite, crude | 2,000 | 2,000 | 2,000 | 792 ³ | 1,000 |
| Lime | 800 | 800 | 800 | 800 | 800 |
| Nitrogen: | | | | | |
| Ammonia, N content | 1,511 ³ | 1,801 ³ | 1,839 ³ | 1,790 ³ | 1,652 ³ |
| Urea, N content | 853 ³ | 1,091 ³ | 1,078 ³ | 1,134 ³ | 1,078 ³ |
| Phosphate: | | | | | |
| Phosphate rock | 1,096 ³ | 972 | 1,500 | 2,183 ^{r, 3} | 2,219 ³ |
| P ₂ O ₅ content | 317 | 293 | 434 | 630 | 650 |
| Sodium compounds: | | | | | |
| Salt | 2,400 | 2,400 | 2,400 | 1,341 ^{r, 3} | 1,400 |
| Soda ash | 50 | 50 | 50 | 50 | 50 |
| Sodium sulfate metric tons | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 |
| Stone, sand and gravel: | | | | | |
| Basalt thousand cubic meters | 300 | 300 | 300 | 300 | 300 |
| Dolomite | 3,500 | 3,000 | 3,000 | 3,000 | 3,000 |
| Granite, dimension stone cubic meters | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| Gravel thousand cubic meters | 12,000 | 11,000 | 11,000 | 11,000 | 11,000 |
| Limestone and similar do. | 27,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| Marble (includes alabaster) blocks cubic meters | 140,000 | 140,000 | 140,000 | 140,000 | 140,000 |
| Sand: | | | | | |
| Industrial sand (glass sand) | 600 | 600 | 600 | 640 ³ | 650 |
| Construction sand | 22,000 | 21,000 | 21,000 | 21,000 | 21,000 |
| Sandstone thousand cubic meters | -- | 10 | 10 | 10 | 10 |
| Sulfur: | | | | | |
| Elemental, byproduct metric tons | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 |
| Sulfuric acid, S content | 220 | 220 | 220 | 220 | 220 |
| Talc, soapstone, pyrophyllite metric tons | 40,000 | 40,000 | 45,529 ^{r, 3} | 40,000 | 40,000 |
| Vermiculite do. | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Coal | 39 | 58 | 58 | 139 ^{r, 3} | 100 |
| Coke | 1,400 | 1,400 | 1,400 | 1,406 ^{r, 3} | 1,400 |

See footnotes at end of table.

TABLE 1--Continued
EGYPT: ESTIMATED PRODUCTION OF MINERAL COMMODITIES^{1, 2}

(Thousand metric tons unless otherwise specified)

| Commodity | 2000 | 2001 | 2002 | 2003 | 2004 |
|--|---------|---------------------|-------------------------|----------------------------|---------|
| MINERAL FUELS AND RELATED MATERIALS--Continued | | | | | |
| Gas, natural: | | | | | |
| Gross production million cubic meters | 25,000 | 30,100 ^r | 27,700 | 30,969 ³ | 31,000 |
| Dry do. | 21,000 | 24,550 ³ | 19,605 ^r | 17,680 ^{r, 3} | 18,000 |
| Petroleum: | | | | | |
| Crude, including condensate thousand 42-gallon barrels | 285,000 | 277,000 | 221,350 ^{3, 4} | 221,219 ^{3, 4, 5} | 219,000 |
| Refinery products: | | | | | |
| Liquefied petroleum gas do. | 5,500 | 5,500 | 6,705 ³ | 6,763 ^{3, 4, 6} | 6,800 |
| Gasoline and naphtha do. | 45,000 | 45,000 | 51,572 ³ | 53,210 ^{3, 4, 7} | 54,000 |
| Kerosene and jet fuel do. | 16,000 | 16,000 | 19,579 ³ | 19,335 ^{3, 4} | 20,000 |
| Distillate fuel oil do. | 46,000 | 46,000 | 57,457 ³ | 61,060 ^{3, 4} | 61,000 |
| Residual fuel oil do. | 83,000 | 83,000 | 66,687 ³ | 68,884 ^{3, 4} | 69,000 |
| Lubricants do. | 1,800 | 1,800 | 1,960 ³ | 1,855 ^{3, 4} | 1,900 |
| Asphalt do. | 6,000 | 6,000 | 5,484 ³ | 5,709 ^{3, 4} | 5,800 |
| Unspecified ⁸ do. | 1,700 | 1,700 | 2,139 ³ | 2,155 ^{3, 4} | 2,200 |
| Total do. | 205,000 | 205,000 | 211,583 ^{r, 3} | 218,971 ^{r, 3, 4} | 219,000 |

^rRevised. -- Zero.

¹Estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Table includes data available through November 1, 2005. In addition to those listed, Egypt produced a number of commodities for which data were unavailable; these include gemstones, and some metals, such as gold and lead, which were produced from recycled material; zinc; and manufactured mineral commodities, such as carbon black and glass.

³Reported figure.

⁴Source: Ministry of Petroleum of the Arab Republic of Egypt.

⁵Excluding condensate.

⁶Excluding product from fields.

⁷Gasoline only.

⁸Amounts needed to complete reported refinery products totals shown.

TABLE 2
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | | Location of main facilities | Annual capacity |
|--------------------------|---|--|-----------------------------|---|
| Aluminum | Aluminium Co. of Egypt (Government, 80%, and private interests, 20%) | | Nag Hammadi | 230. |
| Carbon black | Alexandria Carbon Black Co. (Egyptian Holding Co. for the Chemical Industry, 49%; Inco-Bharat, 36%; Grasim Industries 15%) | | Alexandria | 20. |
| Cement | Amirya Cement Co. | | do. | 2,500. |
| Do. | Cemex Egypt | | Assiut | 5,000. |
| Do. | Helwan Portland Cement Co. (Government, 73%, and private interests, 27%) | | Helwan | 2,800. |
| Do. | do. | | El Minya | 200. |
| Do. | Egyptian Cement Co. (Orascom Group, 40%; private interests, 40%; Holderbank Financiere Glaris Ltd., 20%) | | 70 kilometers east of Cairo | 1,400. |
| Do. | Suez Cement Co. (Government, 65.9%, and Ciments Français, S.A., 34.1%) | | Suez | 3,000. |
| Do. | do. | | Qattamiah | 2,500. |
| Do. | do. | | Tourah | 2,500. |
| Do. | Alexandria Portland Cement Co. (Government, 77%, and private interests, 23%) | | El Mex | 800. |
| Do. | National Cement Co. (Government, 77%, and private interests, 23%) | | El Tabbin | 4,000. |
| Do. | do. | | Beni Suef | 1,000. |
| Fertilizers, nitrogenous | Abu Qir Fertilizer & Chemical Industries Co., [private and public interests, 80.9%, and Egyptian General Petroleum Corp. (EGPC), 19.1%] | | Abu Qir A | 660 (ammonia); 760 (ammonia nitrate). |
| Do. | do. | | Abu Qir B | 300 (ammonia); 500 (urea). |
| Do. | do. | | Abu Qir C | 330 (ammonia); 600 (urea). |
| Do. | Société El-Nasr d Engrais et d'Industries Chimiques (Government, 100%) | | Suez | 146 (ammonia); 450 (nitric acid); 365 (ammonia nitrate). |
| Do. | do. | | Talkha | 330 (ammonium nitrate); 570 (ammonia and urea). |
| Do. | Egyptian Chemical Industries (Government, 100%) | | Kima | 330 (ammonia); 600 (nitric acid); 800 (ammonium nitrate). |
| Iron ore | Egyptian Iron and Steel Co. (Government, 100%) | | El-Gedida Mine, El Bahariya | 3,000. |
| Iron oxide | El-Nasr Mining Co. (Holding Company for Metallurgical Companies, 100%) | | Mines near Sinai and Aswan | 150. |
| Natural gas | million cubic meters | Egyptian General Petroleum Corp. (EGPC) (Government, 100%) | Abu Madi | 3,800. |
| Do. | do. | do. | Badreddin-3 | 3,000. |
| Do. | do. | do. | Abu Qir/Naf | 1,900. |
| Do. | do. | do. | Ras Shukheir | 1,600. |
| Do. | do. | Grupo Khalda (Repsol S.A., 50%; Apache Oil Co., 40%; Samsung Corp., 10%) | Khalda | 24. |
| Petroleum, crude | million 42-gallon barrels | Gulf of Suez Oil Co. [Egyptian General Petroleum Corp. (EGPC), 50%, and Amoco Corp., 50%] | October, Suez Gulf | 45. |
| Do. | do. | do. | El Morgan, Suez Gulf | 27. |
| Do. | do. | Belayim Petroleum Co. [Egyptian General Petroleum Corp. (EGPC), 50%, and International Egyptian Oil Co. 50%] | Belayim, Suez Gulf | 65. |
| Do. | do. | Suez Oil Company [Egyptian General Petroleum Corp. (EGPC), 50%; Deminex S.A., 25%; Repsol S.A., 25%] | Ras Budran, Suez Gulf | 15. |

TABLE 2--Continued
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|---------------------|-------------------|---|--|-----------------------------------|
| Petroleum, pipeline | million | Arab Petroleum Pipeline Co. (Egypt, 50%; Saudi | Ain al-Sokhna to Sidi Kir | 875. |
| | 42-gallon barrels | Arabia, 15%; Kuwait, 15%; United Arab Emirates, 15%; Qatar, 5%) | | |
| Petroleum, refined | do. | Cairo Petroleum Refining Co. (Government, 100%) | Mostorod | 42. |
| Do. | do. | do. | Tanta | 15. |
| Do. | do. | Alexandria Petroleum Co. (Government, 100%) | Alexandria | 42. |
| Do. | do. | El-Nasr Petroleum Refining Co. (Government, 100%) | Suez | 36. |
| Do. | do. | Ameriya Petroleum Refining Co. (Government, 100%) | Ameriya | 27. |
| Do. | do. | Suez Petroleum Processing Co. (Government, 100%) | Suez | 21. |
| Do. | do. | Asyut Petroleum Refining Co. (Government, 100%) | Asyut | 18. |
| Phosphate rock | | El-Nasr Mining Co. (Holding Company for Metallurgical Companies, 100%) | Mines at East Sabaiya, West Sabaiya and El Qusier | 1,000. |
| Steel | | Ezz El-Dekheila Group (EZDK) | Plants at Ain Sukhna, Alexandria, and Sadat City | 1,800 rebar; 1,000 flat steel. |
| Do. | | Egyptian Iron and Steel Co., Hadisolv (Government, 100%) | Helwan steel plant | 1,500. |